

**CLAIMS**

We claim:

1. A method for predicting service level in a utility computing environment having a dynamically allocated subset of computing resources from a set  
5 of available computing resources, the method comprising the steps of:  
  
creating a resource profile corresponding to a first subset of computing resources allocated according to a service level agreement;  
  
loading a workload profile representing a demand profile for the enterprise; and  
10 simulating the processing of the workload profile using the resource profile to produce a service level result, wherein the resource profile resource subset is modified during the simulation according to the service level agreement.
- 15 2. The method of claim 1, further comprising the steps of:  
  
comparing the service level result to a service level agreement; and  
  
signaling whether the computing resource profile will process the workload profile at an expected service level corresponding to the service level agreement.
- 20 3. The method of claim 1, wherein the subset of computing resources includes allocated processing resources and memory resources for a client account;

4. The method of claim 1, wherein the service level agreement includes a base resource allocation, a maximum resource allocation, resource costs and rules for dynamically reallocating the resources based upon workload demand.

5 5. The method of claim 1, wherein the simulation step is scheduled to run automatically at an off-peak time.

6. The method of claim 1, further comprising the step of determining a cost associated with meeting the service level demand.

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7. The method of claim 1, wherein the set of computing resource profile also includes communication bandwidth.

8. The method of claim 1, further comprising the step of comparing the  
15 workload profile to a second workload profile representing an actual demand profile for a second client account;

wherein the simulating step is based upon a result of the comparison step.

9. The method of claim 1 further comprising the step of generating a  
20 modified service agreement in the event the computing resource profile will not process the workload profile at the expected service level corresponding to the service level agreement, wherein the modified service level agreement will process the workload profile at the expected service level.

10. The method of claim 1, wherein the workload profile includes scheduling information and the simulation step incorporates the scheduling information in the processing.

5 11. The method of claim 1, wherein the workload profile includes information corresponding to one or both of prioritization of resources and importance of specific resources.

12. The method of claim 1, wherein the workload profile is loaded from a  
10 configuration file.

13. A system for simulating service in a utility computing environment having a service level agreement to service the demands of an enterprise using a dynamically allocated subset of computing resources from a set of available  
15 computing resources, comprising:

an allocated subset of the set of computing resources;

logic for loading a workload profile representing a hypothetical demand profile for a client account; and

logic for simulating the processing of the workload profile using the  
20 subset of computing resources to produce a service level result.

14. The system of claim 13, further comprising:

logic for comparing the service level result to a service level agreement; and

logic for signaling whether the computing resource profile will process the workload profile at an expected service level corresponding to the service level agreement.

5           15.    The system of claim 13, wherein the set of computing resource profile comprises:

                  processing resources; and  
                  memory resources.

10           16.    The system of claim 15, wherein the computing resource profile further comprises:

                  a base resource allocation;  
                  a maximum resource allocation;  
                  resource costs; and

15                   rules for dynamically reallocating the resources based upon workload demand.

                  17.    The system of claim 15, wherein the set of computing resource profile also comprises communication bandwidth.

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                  18.    The system of claim 13, further comprising logic for comparing the workload profile to a second workload profile representing an actual demand profile for a second client account;

wherein a simulation produced by the simulation logic is based upon a result of the comparison step.

19. The system of claim 13 further comprising logic for generating a  
5 modified service agreement in the event the computing resource profile will not process the workload profile at the expected service level corresponding to the service level agreement, wherein the modified service level agreement will process the workload profile at the expected service level.

10 20. The system of claim 13, wherein the workload profile includes scheduling information and the simulation logic incorporates the scheduling information in the processing.

21. A computer program product for predicting service level compliance  
15 in a utility computing environment having a service level agreement to service the demands of an enterprise using a dynamically allocated subset of computing resources from a set of available computing resources, comprising:

a memory,

a resource list, stored on the memory, detailing a set of available  
20 computing resources;

an allocated resource list, stored on the memory, detailing an allocated subset of the set of computing resources;

logic, stored on the memory, for creating a computer resource profile based upon the allocated subset of the set of available computing resources;

logic, stored on the memory, for loading a workload profile representing a hypothetical demand profile for a client account;

logic, stored on the memory, for simulating the processing of the workload profile using the computer resource profile to produce a service level result;

logic, stored on the memory, for comparing the service level result to a service level agreement; and

logic, stored on the memory, for signaling whether the computing resource profile will process the workload profile at an expected service level corresponding to the service level agreement.

22. The system of claim 21, wherein the set of computing resource profile comprises:

processing resources; and

memory resources.

23. The system of claim 22, wherein the computing resource profile further comprises:

a base resource allocation;

a maximum resource allocation;

resource costs; and

rules for dynamically reallocating the resources based upon workload demand.

24. The system of claim 22, wherein the set of computing resource profile also comprises communication bandwidth.

25. The system of claim 21, further comprising logic for comparing the  
5 workload profile to a second workload profile representing an actual demand profile for a second client account;

wherein a simulation produced by the simulation logic is based upon a result of the comparison step.

10 26. The system of claim 21 further comprising logic for generating a modified service agreement in the event the computing resource profile will not process the workload profile at the expected service level corresponding to the service level agreement, wherein the modified service level agreement will process the workload profile at the expected service level.

15 27. The system of claim 21, wherein the workload profile includes scheduling information and the simulation logic incorporates the scheduling information in the processing.